FCC COMMON CARRIER DOCKET NO. 01-92:

RESPONSE TO ECONOMIC ANALYSES OF BILL-AND-KEEP

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Introduction

In August 2001, Economics and Technology, Inc. (ETI) issued a report that analyzed the economic and policy foundations of the intercarrier compensation mechanisms applicable to interconnected telecommunications common carriers.[1] That report was submitted in the ongoing Federal Communications Commission (FCC or "Commission") rulemaking proceeding that is considering comprehensive changes to existing intercarrier compensation arrangements, including the possibility of implementing so-called "bill-and-keep" arrangements on a mandatory basis for one or more categories of service.[2] A number of other parties to that proceeding have also submitted economic analyses bearing on these issues. This paper is intended to respond to those alternative perspectives, and thereby to assist the Commission in its examination of this uniquely challenging area.

This paper was prepared by ETI at the request of Focal Communications Corp., Pac-West Telecomm, Inc., US LEC Corp., and RCN Telecom Services, Inc. However, the views expressed herein are those of the authors, and do not necessarily reflect the views of its sponsors.

The economic studies offered by other commenting parties confirm the ETI Report's conclusion that bill-and-keep approaches to intercarrier compensation, and specifically the COBAK and BASICS proposals, offer no efficiency advantages or other net benefits over existing arrangements, and should not be adopted on a mandatory basis by the Commission.

Several parties to this proceeding have attached economic studies to their initial comments. These are as follows:

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1. Selwyn, Lee L. and Lundquist, Scott C. , "Efficient Intercarrier Compensation Mechanisms for the Emerging Competitive Environment," August 2001 ("ETI Report"), submitted in CC Docket 01-92 as an attachment to the *Comments of Focal Communications Corp., Pac-West Telecomm, Inc., RCN Telecom Services, Inc. and US LEC Corp.*, filed August 21, 2001 *(Focal et al Comments).*

2. *In the Matter of Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92.

- "Analysis of Central Office Bill and Keep ("COBAK")", Dr. Joseph Farrell and Dr. Benjamin E. Hermalin, August 2001 ("Farrell and Hennalin 2001"), provided as Exhibit 1 to the Comments of Time Warner Telecom.

- "Network Interconnection with Two-sided User Benefits", Dr. Benjamin E. Hermalin and Dr. Michael L. Katz, July 2001 ("Hermalin and Katz 2001"), provided as Appendix C to Exhibit 1 of the Comments of Time Warner Telecom.

- "Declaration of Janusz A. Ordover and Robert D. Willig on behalf of AT&T Corp.," August 2001 ("Ordover and Willig Declaration"), provided as an attachment to the Comments of AT&T Corp.

- "Implementing Bill and Keep Intercarrier Compensation When Incumbent LECs Have Market Power", Patrick DeGraba, August 20, 2001 ("DeGraba Declaration"), provided as an attachment to the WorldCom Comments.

In addition, a number of other parties have supplied economic and policy analyses of the COBAK and BASICS proposals in their comments. The more substantive of these analyses include the following:

- Comments of the National Association of State Utility Consumer Advocates (NASUCA), at Section V ("The Commission's Proposals Violate Economic Efficiency") and Annexes ("Comments on OPP Working Paper *33* by Patrick DeGraba" and "Comments on OPP Working Paper **34** by Jay M. Atkinson and Christopher C. Barnekov").

- Comments of the United States Telecom Association (USTA), at Section IV, Part A ("Some Pros and Cons of Bill and Keep").

- Comments of the Maryland Office of People's Counsel, at Sections **8-11**.

We have reviewed these analyses, as well as other responses to the Commission's bill-and-keep proposals, and find that they provide further support for our previous conclusions that bill-and-keep does not offer a sound alternative to existing intercarrier compensation mechanisms and should not be adopted by the Commission on a mandatory basis.

A. The economic studies confirm that the "equal benefits" and "equal responsibility" assumptions underlying COBAK and BASICS are invalid, and their claimed efficiency benefits are therefore illusory.

As the ETI Report explained (pages 44-45), the COBAK proposal is explicitly premised upon an assumption that the benefits of a telephone call are, on average, shared equally between the caller and the call recipient, and the BASICS proposal rests upon a similar assumption that both parties share equal responsibility for a call. The ETI Report provided several reasons why the assumptions of "equal benefit" and "equal responsibility" are not likely to be valid (pages 46-47). Several of the economic studies filed by other commenters have confirmed this analysis and have expanded on our conclusions.

Ordover and Willig recognize this shortcoming of the COBAK proposal. They find that "there is … little basis in logic or economics for this assumption" (para. 32), and provide further examples that contradict the assumption of equal benefits (para. 33). In addition, they point out that COBAK and other bill-and-keep proposals do not, in fact, follow the principle of equal responsibility, which would imply dividing the total costs for an end-to-end call strictly equally between the two end users involved. Instead, as they conclude, bill-and-keep "requires each party's carrier (and therefore each carrier's end-user) to bear its own costs, and the cost of originating the call may be less than or greater than the cost of terminating the call" (para. 34). The failures of COBAK and BASICS to live up to this principle are particularly noticeable in their varying (and inconsistent) treatments of transport cost, neither of which would result in equal sharing of those costs between the two parties to a call (see ETI Report at pages 48-49).

Even if the "equal benefits" assumption happened to be true on average, it clearly does not hold for all particular calls — for example, the random telemarketing call arriving during dinnertime. Ordover and Willig also demonstrate that, relative to traditional Calling Party's Network Pays (CPNP) arrangements, bill-and-keep does a particularly poor job of treating negative externalities, i.e., the costs arising from unwanted calls, including but not limited to telemarketing calls. Because bill-and-keep would shift some of the costs of placing a call onto the call recipient, it would reduce the calling parties' share of the costs of unwanted calls and increase the supply of unwanted calls (paras. 36 and footnote 9). Other commenters have also recognized this adverse outcome of bill-and-keep.[3]

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3. See, e.g., Maryland OPC Comments at pages 26-28 (bill-and-keep would stimulate inefficient telemarketer calling) and NASUCA Comments at 33 (setting carriers' cost of termination at zero will stimulate demand for telemarketing calls and create a welfare loss).

Ordover and Willig identify another related drawback of bill-and-keep, which is that "B&K actually restricts the ability of consumers to internalize the positive externalities of a call" (para. *35)*. They explain that CPNP has the flexibility to allow end users to more closely match cost recovery to their respective benefits from calling, so that, for example, businesses that expect to gain disproportionate benefits from customer calls can subscribe to 800-number services and absorb the costs of inward calls (para. 30). In contrast, 800-type services would not be workable under bill-and-keep, because the interexchange carrier would be able to offer called-party-pays pricing on only the interexchange portion of the call (para. 30, footnote 7). The loss of this flexibility means that, all other things being equal, bill-and-keep would be "less likely to produce efficient results'' (para. *35)*.

Even more damaging to the case for bill-and-keep are the two economics papers co-authored by Dr. Hermalin. Taken together, the Farrell and Hermalin analysis, and the companion paper by Hermalin and Katz, provide a convincing demonstration that bill-and-keep, and the COBAK variation in particular, would fail to satisfy the Commission's goal of increasing the efficiency of intercarrier compensation arrangements.

First, Farrell and Hermalin have correctly observed (page 4) that COBAK's assumption that the calling and called parties each derive *equal* benefit from telephone calls is a much stronger assumption than merely that both parties benefit, which at least has some intuitive plausibility for most (although certainly not all) calls. As expressed by Farrell and Hermalin (page 4), this is one of the "special, implausible, and crucial assumptions, primarily assumptions of symmetry" that are central to the COBAK framework. The second such assumption made by Dr. DeGraba is that the marginal costs of the interconnecting networks are precisely equal.[4] Farrell and Hermalin demonstrate that this assumption is also "unlikely to hold, because different networks use different technologies and have different blocking probabilities" (page 4).

Second, Hermalin and Katz have provided insights into bill-and-keep's performance when the "equal benefits" and/or "equal marginal costs" conditions are violated. They have developed a series of economic models of two-party communications (including, but not limited to, telephone calls) that analyze the welfare consequences when benefits of the communication may be shared between the two parties. One of those models en-

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4. DeGraba, Patrick, *Bill-and-Keep at the Central Office as the Efficient Interconnection Regime*, OPP Working Paper No. *33* (December 2000) , at para. *55:* see also Hermalin and Katz, at page 26 (Dr. DeGraba analyzed the case of $m_x = m_y$, i.e., equal marginal costs).

compasses the scenario relied upon by Dr. DeGraba in his construction of the COBAK mechanism, as a special case of their more generalized model.[5] The authors demonstrate that, within the limits of this model, Dr. DeGraba's finding that a zero interconnection charge (i.e., bill-and-keep) is an efficient solution holds only for a very narrow range of conditions, outside of which a positive interconnection charge (i.e., an explicit reciprocal compensation scheme) will be the efficient solution *(id.,* at 26). *This finding means that, even in the ideal case (abstracting away from all of the daunting implementation problems addressed elsewhere in these reply comments), COBAK, along with other similar forms of bill-and-keep, is unlikely to result in socially optimal, efficient retail prices for telephone service.*[6]

B. The proponents of bill-and-keep have failed to provide any meaningful economic support for establishing a mandatory bill-and-keep regime.

In contrast to these detailed economic analyses, the comments supplied by the proponents of bill-and-keep, including the ILECs and their representatives, fail to provide any meaningful economic support for adopting COBAK, BASICS, or any other bill-and-keep arrangement on a mandatory basis.

USTA makes a sweeping claim that bill-and-keep provides "greater opportunities to achieve economic efficiency" on the grounds that it "reflects principles of cost causation" (USTA Comments at page 21). However, USTA supplies no further analysis of such cost causation or precisely *how* the costs of calls should be split between the caller and the called party, in contrast to the thorough examination of these issues included in the Ordover and Willig Declaration (at paras. 26-37), which reaches precisely the opposite conclusion *(id.* at para 37).

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5. Hermalin and Katz, Section 5 ("Stochastically Dependent Message Values"). In addition to allowing the marginal costs of the two interconnecting networks to vary, their model assumes that the expected values of the communication for each end user are in a linear relationship, which is an extension of Dr. DeGraba's assumption that they are equal. *Id.* at pages 22, 26.

6. Hermalin and Katz also reject Atkinson and Barnekov's assumption that retail prices are independent of the way interconnection is priced. Hermalin and Katz, page 3. This fundamental problem with the Atkinson and Barnekov analysis was also identified in the ETI Report (pages 39-40).

The initial comments filed by Verizon and SBC do not address the relative efficiency of bill-and-keep and CPNP at all. Qwest contends that bill-and-keep is "at least as efficient" as CPNP in the manner in which it allocates costs between the calling and called parties (page 20). Qwest observes that, after a call has been answered, the called party as well as the calling party could terminate the call at any moment; from this, Qwest concludes that the two parties must be seen as jointly responsible for the costs incurred as the call continues (page 20). However, this reasoning is faulty, because a proper analysis of causation must look to *actions,* not *potential* actions. It is insufficient for the purposes of establishing causation relative to a telephone call to say that the called party *could* have hung-up (a potential action), just as it would be inappropriate to conclude that a telephone lineman who was working in the called party's neighborhood caused the call, because he *could* have stopped the call by cutting the line. More to the point, assuming that the inbound call is unwanted, the called party will in any event suffer the inconvenience of having to interrupt whatever he or she is doing to answer the call, make an evaluation of its purpose, and then decide whether to proceed with the call or to hang up. Qwest seems to arrogantly dismiss any "costs" that this unwanted call imposes upon the recipient.

Beyond the causation issue, however, Ordover and Willig have supplied another reason why mandatory bill-and-keep is not likely to be a more efficient solution than CPNP. **As** they have explained (para. 35), mandatory bill-and-keep would fail to afford the two parties any flexibility to negotiate an allocation of those costs that would match the benefits they receive from the call, and therefore is less likely to result in efficient outcomes than CPNP, where such negotiation is possible.

BellSouth also appears to assume that bill-and-keep will increase the efficiency of intercarrier compensation (page 16), but narrowly focuses only upon the potential efficiency gains that might result from eliminating the "regulatory gaming" it contends has been occurring under existing reciprocal compensation arrangements (pages 2-3). BellSouth provides no specific evidence concerning the magnitude of those alleged efficiency gains, but even if it had, the Commission would have to consider them in the context of the overall efficiency impacts of a change in the interconnection regime. Moreover, this pejorative attribution of the existing market outcome as "regulatory gaming" ignores the fact, as we addressed in the initial ETI Report, that the prevailing reciprocal compensation rates to which CLECs have been induced to respond were for the most part dictated by the ILECs based upon their flawed assessments of the ability of CLECs to seek out customers with disproportionate inward calling requirements. The only "regulatory gaming" that is occurring here is the effort by some ILEC parties to invoke regulatory intervention, rather than a legitimate market response, to insulate them from competitive losses with respect to the delivery and termination of inbound calls.

Of course, there are also several important objectives beyond optimizing efficiency that the Commission must balance when considering changes to existing intercarrier compensation mechanisms. We have previously identified the objective of promoting *regulatory certainty* in this area as crucial to the financial viability of CLECs *(Focal et al Comments,* at pages 1-4). NRTA and OPASTCO (page 13) also advise the Commission against rushing into a bill-and-keep regime based upon speculative efficiency gains, finding that "an intercarrier compensation regime in which market efficiency and facilitating competition were the only goals would be disastrous in rural areas where there is hardly a market, unless there were specific, effective mechanisms implemented concurrently to deal with the universal service impacts." The universal service implications of bill-and-keep are taken up later in these comments.

The Initial Comments filed by other parties confirm our view that mandatory bill-and-keep would offer little or no incremental efficiency benefit unless it was applied to all forms of telecommunications traffic, which itself presents daunting challenges.

The ETI Report notes that the FCC economists who developed the two economic variations of bill-and-keep explicitly considered in the NPRM, the "COBAK' and "BASICS" proposals, assert that these devices would have to be applied to the widest possible range of telecommunications traffic in order to be effective. (ETI Report, at page 43) Dr. DeGraba's Declaration, attached to the initial comments of WorldCom, reiterates that point. As he states:

> Finally, COBAK is meant to be a unified approach to interconnection, meant to apply to all forms of traffic that use the public switched network. Implementing COBAK on a piecemeal basis could actually increase in some instances the incentives for service providers to engage in regulatory arbitrage. **A** piecemeal implementation would also prevent the markets from realizing all of the efficiencies that could be obtained if all facilities were provisioned under a single set of rules.[7]

A number of other commenters, including ILECs, also recognize that bill-and-keep is unlikely to afford significant benefits from the status quo unless it is adopted for a wide range of traffic types. USTA concludes (page 26) that two of the conditions that "must be present to adopt bill and keep" is "application to all carriers, networks, and tech-

7. DeGraba Declaration, at 32.

nologies" and "application to both the intrastate and the interstate jurisdiction.'' SBC similarly supports application of bill-and-keep on a wide basis, including all Internet traffic, local calling, and wireless traffic (pages 1 and 24). SBC also supports extension of bill-and-keep to both intrastate and interstate access, provided that alternative end user recovery mechanisms are established beforehand (pages 1 and 24-25). According to SBC, if the Commission adopts bill-and-keep for only a limited subset of services, e.g., for interstate services but not for intrastate service, that bifurcation will create the conditions for arbitrage (page 25). BellSouth makes the same point, and concludes that "in order for bill-and-keep to operate as intended, it must be implemented uniformly across state and interstate jurisdictions" (page 4).

The catch is that any attempt to implement mandatory bill-and-keep on a wide scale basis will create enormous transitional problems. Some of these have been identified and explained in the ETI Report (see pages 39-43). However, other commenters, including proponents of mandatory bill-and-keep, have raised other issues that create daunting challenges to a successful implementation of a unified bill-and-keep regime.

For example, SBC urges the Commission to adopt a modified version of COBAK (page 25), but finds that "before the Commission can implement a uniform bill and keep regime, it finally must tackle the difficult issues of implicit subsidies and universal service reform" (page 2). SBC claims (page 22) that "many states, either through state statute or regulation, have capped local service prices. These price restrictions are plainly incompatible with a shift from implicit subsidies to explicit recovery, and from intercarrier compensation to bill and keep." Of course, SBC neglects to point out that most of the ILEC price cap plans that are in place were initiated by the ILECs themselves, and in many instances granted ILECs pricing freedom for non-basic services in return for the protection of basic services customers from price increases. In any event, SBC is contending that the Commission and state regulators will have to undertake the following fundamental changes to the telecommunications regulatory regime before adopting mandatory bill-and-keep:

- Allow increases in ILECs' residential local service rates, ostensibly to replace the loss of implicit subsidies from access charges and other services (page 21);

- Allow geographic deaveraging of ILECs' residential local rates, which SBC claims amounts to another form of implicit subsidies (page 21);

- Perform a "fundamental reexamination'' of universal service funding **(USF)** mechanisms (page 22) and establish an affordability threshold, defined as a percentage of median household income, for end users to quality for USF assistance (page 23);

- Allow ILECs to establish new end user charges to recover the costs of originating and terminating switched access, as well as network-to-network transport costs, and furthermore, grant them pricing flexibility as to the level and type of charges they will impose (pages 31-32).

Even if all of these revisions were necessary (and we do not believe that they are), they clearly represent extremely far-reaching and controversial changes. A thorough examination of the underlying issues would require an unprecedented effort by the Commission and state regulators, and intervention by the full range of telecommunications industry stakeholders. While SBC believes that immediate action by the Commission could allow bill and keep to be implemented by July 2005 – i.e., a minimum delay of four years – that schedule appears to be far too optimistic, given that the Commission already has been engaged in universal service reform for five years and has not yet resolved many outstanding issues.[8]

Data supplied by USTA indicates that full implementation of bill-and-keep would expose end users served by larger ILECs to rate increases in the range of $7.82 per line per month, with the prospect of much higher rate impacts in certain situations.

The USTA takes a cautious approach to the Commission's bill-and-keep proposals. While USTA ultimately supports the concept of bill-and-keep, it also expresses a number of serious reservations. First, it finds fault with the proposed COBAK and BASICS plans, concluding that "the BASICS bill and keep proposal would be difficult to implement and administer and would require regulatory intervention" (page iii), and that "using the central office as the POI as proposed in COBAK raises many concerns since carriers may locate their switches great distances from where the call actually terminates" (page iii). More generally, USTA concludes (page ii) that "there also may be harms associated with bill and keep, particularly if current access revenue streams are displaced and end user recovery is required, regarding the affordability of rates, the ability to

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8. For example, the Commission decided in May 1997 that ILECs' universal service funding requirements should be evaluated using a forward-looking cost model, but four years later, it has had to adopt an embedded cost mechanism for rural carriers because of the difficulty in determining appropriate cost inputs for a forward-looking model. See *Fourteen Report and Order, Twenty-Second Order on Reconsideration, and Further Notice of Proposed Rulemaking in CC Docket No.* ***96-45,*** *and Report and Order in CC Docket No. 00-256*, FCC 01-157, released May 23,2001, at para. 174.

maintain end user rates that are reasonably comparable between urban and rural areas and the incentives to invest in the infrastructures."

USTA's concerns regarding the affordability of rates, and maintenance of reasonably comparable urban vs. rural rates, are premised upon the notion that, whatever the Commission decides to do, ILECs will in any event be made whole with respect to aggregate revenues. We do not view this as a foregone conclusion, since at least some of the impact upon ILEC revenues would be the result of competitive losses rather than of any modification in the formal compensation mechanism. Nevertheless, USTA presents data on the potential end user impacts that would follow from shifting the recovery of switched access costs to end users, under a COBAK scenario. USTA claims that the monthly per line impacts would be at least $7.82 per line for those users served by the larger carriers (page 23).[9] The end users served by smaller carriers would face much higher monthly charges, in the range of $134.15 per line." USTA has not supplied any workpapers that explain how those figures were calculated or that demonstrates their linkage with COBAK in particular, so we are not able to verify their accuracy. Moreover, USTA appears to take the position that ILECs must be made whole for any potential revenue losses that might result from a transition to mandatory bill-and-keep, even though at least some, and perhaps a substantial share, of those "losses" would be the result of competition and not of revisions to the intercarrier compensation regime. Moreover, ILECs' switched access rates are generally priced well in excess of economic cost and their current interstate earnings are well in excess of the 11.25% "authorized level." Nevertheless, it is fair to conclude from USTA's figures that the ILECs can be expected to petition state PUCs for substantial increases to their retail rates in the event that bill-and-keep was adopted as a substitute for access charges, and that end users would be at **risk** for absorbing those rate increases.

The Regulatory Commission of Alaska (RCA) has supplied further data that demonstrates that a movement to bill-and-keep would have even more severe impacts on Alaska's end users. The RCA estimates that if bill-and-keep were applied to interstate switched access only, about one-third of Alaska's ILECs would need to charge end users

9. USTA reports that, for carriers with over 50,000 lines, the intrastate impact would be a minimum of $0.12 per line for certain carriers, whereas the interstate impact would be no less than $7.70 per line (page 23).

10. This value reflects USTA's estimates of maximum monthly impacts for intrastate access of $88.05 per line, and $46.10 for interstate access (page 23), assuming that the current Subscriber Line Charge (SCL) caps remain in place. These figures are for carriers within specific size categories, and USTA notes that some individual carriers would have rates much higher than those averaged values (page 24, footnote 37).

about $20 per month more than their current local exchange rates, and some users would face monthly per-line charges of $35 to $60 (page 2). Recovering intrastate access costs via bill-and-keep would add another $35 to $100 to the bills faced by end users served by a third of Alaska's ILECs (page 2). As the RCA points out (page 3), bill-and-keep appears to be incompatible with the existing NECA access pooling mechanism, which today limits the end user impacts arising from high costs of service in rural areas. If the NECA pool is dismantled and end users are charged directly by ILECs for the costs of access services in their areas, then it is certain that some users will face extremely high, and likely unaffordable, fees for access. Without the rate averaging created by the NECA pool, end users in rural areas such as Alaska would pay much more for access than would end users in more densely populated, non-rural areas, which directly contradicts the Act's requirement that rural and non-rural telephone rates should be "comparable" (page 3).

The threat that such potential end user charges would pose to universal service can hardly be ignored. Carrier representatives have also recognized this fundamental hurdle to bill-and-keep. NRTA and OPASTCO have concluded (page v) that "a bill-and-keep regime would certainly make it more difficult for the Commission to preserve and advance universal service – and impossible if the USF remains capped." While the NPRM places a great deal of emphasis on the objective of increasing the efficiency of intercarrier compensation mechanisms and pricing, the Commission must ensure that a single-minded pursuit of great efficiency does not disrupt the progress toward other important industry goals, such as fostering universal service.

Conclusion

The authors have reviewed the other economic studies filed in the initial round of comments in CC Docket No. 01-92, and find that they generally confirm the conclusions presented in the original ETI Report. In particular, we find that the economic evidence in the record leads to the conclusion that mandatory bill-and-keep would be unlikely to improve the economic efficiency of intercarrier compensation arrangements, especially if it was introduced selectively for certain service categories only (such as ISP-bound, locally-rated traffic). Moreover, we also find that almost no parties — not even the ILECs — profess unqualified support for a mandatory, uniform regime of bill-and-keep. Instead, a wide range of commenters have identified numerous drawbacks to the proposals advanced in the NPRM, and have raised a cloud of difficult issues and uncertainties that would have to be addressed before the Commission could adopt any bill-and-keep scheme. When these problems are considered together with the slim prospects for achieving any net economic benefits from the radical restructuring of intercarrier compensation to a bill-and-keep regime, the only reasonable conclusion is that the Commission's proposals to establish mandatory bill-and-keep should be abandoned.

CERTIFICATE OF SERVICE

I, Carolyn W. Shaw, hereby certify that on this 5th day of November, 2001, the foregoing document has been sent to the following via hand delivery and first class mail:

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